

5

## CLAIMS

1. A cable (PCA) having a screen (PSC) with a water sensing wire (WSW), said water sensing wire (WSW) comprising:

10

a) a conductor (WC); and

b) a water permeable insulation (WI) surrounding said conductor (WC);

15

*characterized in that*

c) said conductor (WC) is formed by a plurality of metal wires (WW).

20

2. A cable according to claim 1,

*characterized in that*

said plurality of wires (WW) are stranded according to a predetermined length of pitch (WPL) and direction of pitch (WPD).

25

3. A cable according to claim 1,

*characterized in that*

said conductor (WC) is a Litz-wire.

30

4. A cable according to claim 1,

*characterized in that*

inside said water permeable insulation (WI) one or more polymer filaments (WRFI) are contained as reinforcement.

35

5. A cable according to claim 4,

*characterized in that*

said polymer filaments (WRFI) are substantially parallel to said conductor (WC).

- 5 6. A cable according to claim 1,  
*characterized in that*  
said water permeable insulation (WI) is constituted by  
an insulating braiding (WBRA).
- 10 7. A cable according to claim 1,  
*characterized in that*  
said plurality of wires (WW) forming said conductor (WC)  
are Cu wires.
- 15 8. A cable according to claim 1,  
*characterized in that*  
said polymer filaments (WRFI) are made of Aramid® or  
Kevlar®.
- 20 9. A cable according to claim 1,  
*characterized in that*  
said insulating braiding (WBRA) is made of polyester or  
polyamide.
- 25 10. A cable according to claim 1,  
*characterized in that*  
said polymer filaments (WRFI) and said conductor (WC)  
have an elasticity module (E1, E3) such that up to a  
limit force (F2), at which an elastic deformation of  
30 said polymer filaments changes into a plastic  
deformation, only an elastic deformation is applied to  
said conductor (WC).
11. A cable (PCA) according to claim 1, wherein said cable  
35 is a power cable.
12. A cable (PCA) having a screen (PSC) with a water sensing  
wire (WSW), said water sensing wire (WSW) comprising:

5           a)    a conductor (WC); and

          b)    a water permeable insulation (WI) surrounding said  
                conductor (WC);

10           *characterized in that*

          c)    said conductor (WC) is constituted in such a manner  
                that it has a variable deformable cross section  
                during application of radial stress.

15

13. A cable (PCA) according to claim 13 or 2,

*characterized in that*

20           said conductor (WC) is formed by a plurality of metals  
                wires (WW) having air cavities therebetween.

14. A cable (PCA) according to claim 12, 13 or 1,

25           *characterized in that*

          a plurality of reinforcement filaments (WRFI) are  
                provided inside said insulation (WI).

30 15. A cable (PCA) according to claim 14,

*characterized in that*

35           said metal wires (WW) and said reinforcement filaments  
                (WRFI) are arranged such that air cavities are formed  
                between said metal wires (WW) and said reinforcement  
                filaments (WRFI).

5 16. A water sensing wire (WSW) for a cable (PCA),  
comprising:

a) a conductor (WC); and

10 b) a water permeable insulation (WI) surrounding said  
conductor (WC);

*characterized in that*

15 c) said conductor (WC) is formed by a plurality of  
metal wires (WW).

17. A water sensing wire (WSW) for a cable (PCA),  
comprising:

20 a) a conductor (WC); and

b) a water permeable insulation (WI) surrounding said  
conductor (WC);

25 *characterized in that*

c) said conductor (WC) is constituted in such a manner  
that it has a variable deformable cross section  
30 during application of radial stress.

5 18. A cable (PCA) having a screen (PSC) with a water sensing wire (WSW), said water sensing wire (WSW) comprising:

a) a conductor (WC);

10 b) a water permeable insulation (WI) surrounding said conductor (WC),

*characterized in that*

15 c1) said conductor (WC) is a single metal wire (WW);  
and

c2) one or more reinforcement filaments (WRFI) are  
provided inside said water permeable insulation  
20 (WI).

19. A water sensing wire (WSW) for a cable (PCA) comprising:

a) a conductor (WC);

25 b) a water permeable insulation (WI) surrounding said conductor (WC),

*characterized in that*

30 c1) said conductor (WC) is a single metal wire (WW);  
and

c2) one or more reinforcement filaments (WRFI) are  
provided inside said water permeable insulation  
35 (WI).